~~Description~~

METHOD FOR PREDICTING AND CONTROLLING THE CASTABILITY OF LIQUID STEEL

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application is the US National Stage of International Application No. PCT/EP2004/008300, filed July 23, 2004 and claims the benefit thereof. The International Application claims the benefits of German Patent application No. DE10339595.4 filed August 26, 2003. All of the applications are incorporated by reference herein in their entirety.

FIELD OF THE INVENTION

[0002] The invention relates to a method for predicting and controlling the castability of liquid steel by analyzing the chemical composition of a melt to be cast, carrying out an alloy calculation and defining alloying elements and/or additives for obtaining specific material properties of the steel, and determining operating diagrams for further treatment of the melt.

BACKGROUND OF THE INVENTION

[0003] Such methods are used in the manufacture of steel. The liquid steel is supplied by a steelworks. The secondary metallurgy is then performed in a ladle furnace arranged upstream of a thin-strip continuous casting machine. In addition, certain secondary metallurgical equipment is provided in/on the ladle furnace for metallurgical treatment of the liquid steel. This equipment can be used to perform precise analyses of the melt and also for precise thermal conditioning of the melt. The liquid steel is treated in the ladle furnace by adding alloying agents, slag formers, reduction agents, desulfurization agents, etc., where these additives are added automatically or manually. In addition, the slag can be treated by adding oxygen or by rinsing with an inert gas such as argon. The liquid steel can be stirred electromagnetically in the ladle, and electrical energy can also be supplied to it via carbon electrodes. The arc passing from the electrodes to the melt causes the alloying elements to melt and enables the thermal conditioning of the melt.